

interference is not likely. Although no interference is anticipated from the proposed operation, the FCC requires a commitment by the applicant to remedy any new interference caused by the proposed operation. It is possible that interaction will occur between this operation and KLUA. Any such interaction can be addressed through installation of filtering equipment.

Environmental Considerations

There are no significant environmental considerations from this proposal. The existing tower site is not believed to be environmentally sensitive, nor does it fall under the provisions of Section 1.1307 of the Rules. Furthermore, Note 1 of Section 1.1306 (b) states that existing towers are exempt from environmental processing. Therefore, this facility may be categorically excluded from environmental processing.

Human Exposure to Radiofrequency Radiation

The proposed transmitting system will comply with the guidelines for human exposure to radiofrequency radiation contained in ANSI guideline C95.1-1982. The FCC has adopted the ANSI guideline as the maximum allowable exposure levels for humans in the vicinity of transmitting antennas.

FCC OST Bulletin No. 65 sets forth a means of determining whether a proposed facility meets the ANSI guideline limits. Under Commission policy, a facility may be presumed to comply with the ANSI guideline if it satisfies the criteria set forth in OST Bulletin 65.

The proposed channel 256C antenna is at a sufficient height above ground that the OST 65 criteria are met. When computed using the formulae in OST Bulletin No. 65, the RFR levels on the ground will be less than 44 percent of the ANSI limit for the FM broadcast band, including the effect of KLUA. This calculation is based on worst-case assumptions, i.e. that the full power of each antenna is directed downward. The vertical pattern for a Jampro 6-bay antenna with 1.5° of beam tilt, as specified in the channel 256C

application, shows a relative field value of 0.2 or less at depression angles greater than 70 degrees. The elevation pattern supplied with KLUA's construction permit application shows similar values. Use of actual relative field values for the two antennas involved lowers the calculated RFR level at the base of the tower substantially. Calculated power density values at the site are well within the Commission's guidelines regarding human exposure to RF radiation.

A proposed revision to the ANSI guideline will lower the permitted exposure for members of the general public. It is expected that the FCC will adopt the new ANSI guideline after it becomes effective. The proposed facility will comply with the currently proposed guideline, when the appropriate elevation patterns are employed for both the proposed channel 256C and the KLUA antennas.

To provide adequate protection to tower maintenance personnel, and others who must climb the tower, a comprehensive tower policy must be developed. At the minimum, that policy should define those areas in which workers would be safe with both the KLUA and the channel 256C transmitters energized. Using the manufacturer's vertical pattern for each station's specified antenna, the maximum distance above ground at which work could safely be performed is approximately 95 meters (310 feet). This represents a point approximately 13 meters (43 feet) below the channel 256C radiation center. Calculated power density levels on the tower between the two antennas would be above recommended limits. If work must be performed at levels more than 95 meters above ground, one or both stations must cease operation, absent RFR measurements indicating that actual power density levels are below recommended limits. If a tower base fence and RFR warning signs are not in place, it is recommended that such protective devices be installed promptly.

The above calculations are sufficient to demonstrate compliance with all requirements of the FCC. It is recommended that measurements be made at the site to establish the actual RFR levels on the tower to ensure that appropriate worker policies are developed.

ENGINEERING EXHIBIT

Application for Construction Permit

prepared for
Julie K. O'Connor
Waimea, Hawaii

CH 256C (99.1 MHz) 42 kW 860 m

Table of Contents

	FCC Form 301, Section V-B
Figure 1	Antenna System Elevation Plan
Figure 2	Proposed Transmitter Site
Figure 3	Proposed Coverage Contours
Figure 4	Antenna Elevation Pattern
Statement A	Interference Considerations
Statement B	Environmental Considerations

Section V-B - FM BROADCAST ENGINEERING DATA	FOR COMMISSION USE ONLY File No. _____ ASB Referral Date _____ Referred by _____
--	--

Name of Applicant

Julie K. O'Connor

Call letters (if issued) N/A	Is this application being filed in response to a window? <input type="checkbox"/> Yes <input type="checkbox"/> No If Yes, specify closing date: _____
-------------------------------------	--

Purpose of Application: (check appropriate boxes)

- | | |
|--|---|
| <input checked="" type="checkbox"/> Construct a new (main) facility | <input type="checkbox"/> Construct a new auxiliary facility |
| <input type="checkbox"/> Modify existing construction permit for main facility | <input type="checkbox"/> Modify existing construction permit for auxiliary facility |
| <input type="checkbox"/> Modify licensed main facility | <input type="checkbox"/> Modify licensed auxiliary facility |

If purpose is to modify, indicate below the nature of change(s) and specify the file number(s) of the authorizations affected.

- | | |
|---|--|
| <input type="checkbox"/> Antenna supporting-structure height | <input type="checkbox"/> Effective radiated power |
| <input type="checkbox"/> Antenna height above average terrain | <input type="checkbox"/> Frequency |
| <input type="checkbox"/> Antenna location | <input type="checkbox"/> Class |
| <input type="checkbox"/> Main Studio location | <input type="checkbox"/> Other (Summarize briefly) |

File Number(s) _____

1. Allocation:

Channel No.	Principal community to be served:			Class (check only one box below)
	City	County	State	
256	Waimea	Hawaii	HI	<input type="checkbox"/> A <input type="checkbox"/> B1 <input type="checkbox"/> B <input type="checkbox"/> C3 <input type="checkbox"/> C2 <input type="checkbox"/> C1 <input checked="" type="checkbox"/> C

2. Exact location of antenna.

- (a) Specify address, city, county and state. If no address, specify distance and bearing relative to the nearest town or landmark. 1.2km @ 283° true from Kaupuleha Crater, Hawaii County, HI
- (b) Geographical coordinates (to nearest second). If mounted on element of an AM array, specify coordinates of center of array. Otherwise, specify tower location. Specify South Latitude or East Longitude where applicable; otherwise, North Latitude or West Longitude will be presumed.

Latitude	19°	43'	15"	Longitude	155°	55'	16"
----------	-----	-----	-----	-----------	------	-----	-----

3. Is the supporting structure the same as that of another station(s) or proposed in another pending application(s)? ☒ Yes ☐ No

If Yes, give call letter(s) or file number(s) or both. KLUA (FM)

If proposal involves a change in height of an existing structure, specify existing height above ground level including antenna, all other appurtenances, and lighting, if any.

N/A

SECTION V-B - FM BROADCAST ENGINEERING DATA (Page 2)

4. Does the application propose to correct previous site coordinates?

☐ Yes ☒ No

If Yes, list old coordinates.

Latitude	°	'	"	Longitude	°	'	"
----------	---	---	---	-----------	---	---	---

5. Has the FAA been notified of the proposed construction?

☐ Yes ☒ No

If Yes, give date and office where notice was filed and attach as an Exhibit a copy of FAA determination, if available.

Not required under FCC or FAA Rules.

Exhibit No.
N/A

Date _____ Office where filed _____

6. List all landing areas within 8 km of antenna site. Specify distance and bearing from structure to nearest point of the nearest runway.

	Landing Area	Distance (km)	Bearing (degrees True)
(a)	None		
(b)			

7. (a) Elevation: (to the nearest meter)

(1) of site above mean sea level; Obtained from KLUA app. (BPH-900611IC) 1609 meters(2) of the top of supporting structure above ground (including antenna, all other appurtenances, and lighting, if any); and 152 meters(3) of the top of supporting structure above mean sea level [(aX1) + (aX2)] 1761 meters

(b) Height of radiation center: (to the nearest meter) H = Horizontal; V = Vertical

(1) above ground 108 meters (H)108 meters (V)(2) above mean sea level [(aX1) + (bX1)] 1717 meters (H)1717 meters (V)(3) above average terrain 860 meters (H)860 meters (V)

8. Attach as an Exhibit sketch(es) of the supporting structure, labelling all elevations required.

Exhibit No.

SECTION V-B - FM BROADCAST ENGINEERING DATA (Page 3)

10. Is a directional antenna proposed?

☐ Yes ☒ No

If Yes, attach as an Exhibit a statement with all data specified in 47 C.F.R. Section 73.316, including plot(s) and tabulations of the relative field.

Exhibit No.
N/A

11. Will the proposed facility satisfy the requirements of 47 C.F.R. Sections 73.315(a) and (b)?

☒ Yes ☐ No

If No, attach as an Exhibit a request for waiver and justification therefor, including amounts and percentages of population and area that will not receive 3.16 mV/m service.

Exhibit No.
N/A

12. Will the main studio be within the protected 3.16 mV/m field strength contour of this proposal?

☒ Yes ☐ No

If No, attach as an Exhibit justification pursuant to 47 C.F.R. Section 73.1125.

Exhibit No.
N/A

13. (a) Does the proposed facility satisfy the requirements of 47 C.F.R. Section 73.207?

☒ Yes ☐ No

(b) If the answer to (a) is No, does 47 C.F.R. Section 73.213 apply?

N/A ☐ Yes ☐ No

(c) If the answer to (b) is Yes, attach as an Exhibit a justification, including a summary of previous waivers.

Exhibit No.
N/A

(d) If the answer to (a) is No and the answer to (b) is No, attach as an Exhibit a statement describing the short spacing(s) and how it or they arose.

Exhibit No.
N/A

(e) If authorization pursuant to 47 C.F.R. Section 73.215 is requested, attach as an Exhibit a complete engineering study to establish the lack of prohibited overlap of contours involving affected stations. The engineering study must include the following:

Exhibit No.
N/A

- (1) Protected and interfering contours, in all directions (360°), for the proposed operation.
- (2) Protected and interfering contours, over pertinent arcs, of all short-spaced assignments, applications and allotments, including a plot showing each transmitter location, with identifying call letters or file numbers, and indication of whether facility is operating or proposed. For vacant allotments, use the reference coordinates as the transmitter location.
- (3) When necessary to show more detail, an additional allocation study utilizing a map with a larger scale to clearly show prohibited overlap will not occur.
- (4) A scale of kilometers and properly labeled longitude and latitude lines, shown across the entire exhibit(s). Sufficient lines should be shown so that the location of the sites may be verified.
- (5) The official title(s) of the map(s) used in the exhibits(s).

14. Are there: (a) within 60 meters of the proposed antenna, any proposed or authorized FM or TV transmitters, or any nonbroadcast (except citizens band or amateur) radio stations; or (b) within the blanketing contour, any established commercial or government receiving stations, cable head-end facilities, or populated areas; or (c) within ten (10) kilometers of the proposed antenna, any proposed or authorized FM or TV transmitters which may produce receiver-induced intermodulation interference?

☒ Yes ☐ No

If Yes, attach as an Exhibit a description of any expected, undesired effects of operations and remedial steps to be pursued if necessary, and a statement accepting full responsibility for the elimination of any objectionable interference (including that caused by receiver-induced or other types of modulation) to facilities in existence or authorized or to radio receivers in use prior to grant of this application. (See 47 C.F.R. Sections 73.315(b), 73.316(e) and 73.318.)

Exhibit No.
Stmt A

15. Attach as an Exhibit a 7.5 minute series U.S. Geological Survey topographic quadrangle map that shows clearly, legibly, and accurately, the location of the proposed transmitting antenna. This map must comply with the requirements set forth in Instruction V. The map must further clearly and legibly display the original printed contour lines and data as well as latitude and longitude markings, and must bear a scale of distance in kilometers.

Exhibit No.
Fig. 2

16. Attach as an Exhibit *(name the source)* a map which shows clearly, legibly, and accurately, and with the original printed latitude and longitude markings and a scale of distance in kilometers:

Exhibit No.
Fig. 3

(a) the proposed transmitter location, and the radials along which profile graphs have been prepared;

(b) the 3.16 mV/m and 1 mV/m predicted contours; and

(c) the legal boundaries of the principal community to be served.

17. Specify area in square kilometers (1 sq. mi. = 2.59 sq. km.) and population (latest census) within the predicted 1 mV/m contour.

(land area only)

Area 4,928 sq. km.

Population 33,047

18. For an application involving an auxiliary facility only, attach as an Exhibit a map *(Sectional Aeronautical Chart or equivalent)* that shows clearly, legibly, and accurately, and with latitude

Exhibit No.
N/A

SECTION V-B - FM BROADCAST ENGINEERING DATA (Page 5)

Radial bearing (degrees True)	Height of radiation center above average elevation of radial from 3 to 16 km (meters)	Predicted Distances	
		To the 3.16 mV/m contour (kilometers)	To the 1 mV/m contour (kilometers)
38 *	935	68.9	93.8
0	1306	75.5	101.0
45	844	66.6	91.4
90	132	29.5	48.1
135	-99	14.4	25.5
180	788	65.0	89.7
225	1306	75.5	101.1
270	1370	76.6	101.9
315	1230	74.3	99.9

*Radial through principal community, if not one of the major radials. This radial should NOT be included in the calculation of HAAT.

20. Environmental Statement (See 47 C.F.R. Section 1.1301 et seq.)

Would a Commission grant of this application come within Section 1.1307 of the FCC Rules, such that it may have a significant environmental impact? ☐ Yes ☒ No

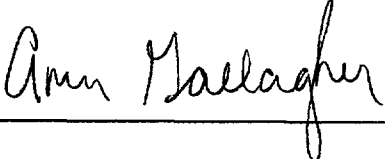
If you answer Yes, submit as an Exhibit an Environmental Assessment required by Section 1.1311.

Exhibit No.

If No, explain briefly why not. Categorically excluded per 1.1306.
See Statement B.

CERTIFICATION

I certify that I have prepared this Section of this application on behalf of the applicant, and that after such preparation I have examined the foregoing and found it to be accurate and true to the best of my knowledge and belief.

Name (Typed or Printed)	Relationship to Applicant (e.g., Consulting Engineer)
Ann Gallagher	Consulting Engineer
Signature	Address (Include ZIP Code)
	Lahm, Suffa & Cavell, Inc. 3975 University Drive, Suite 450 Fairfax, VA 22030
Date	Telephone No. (Include Area Code)
June 3, 1991	(703) 591-0110

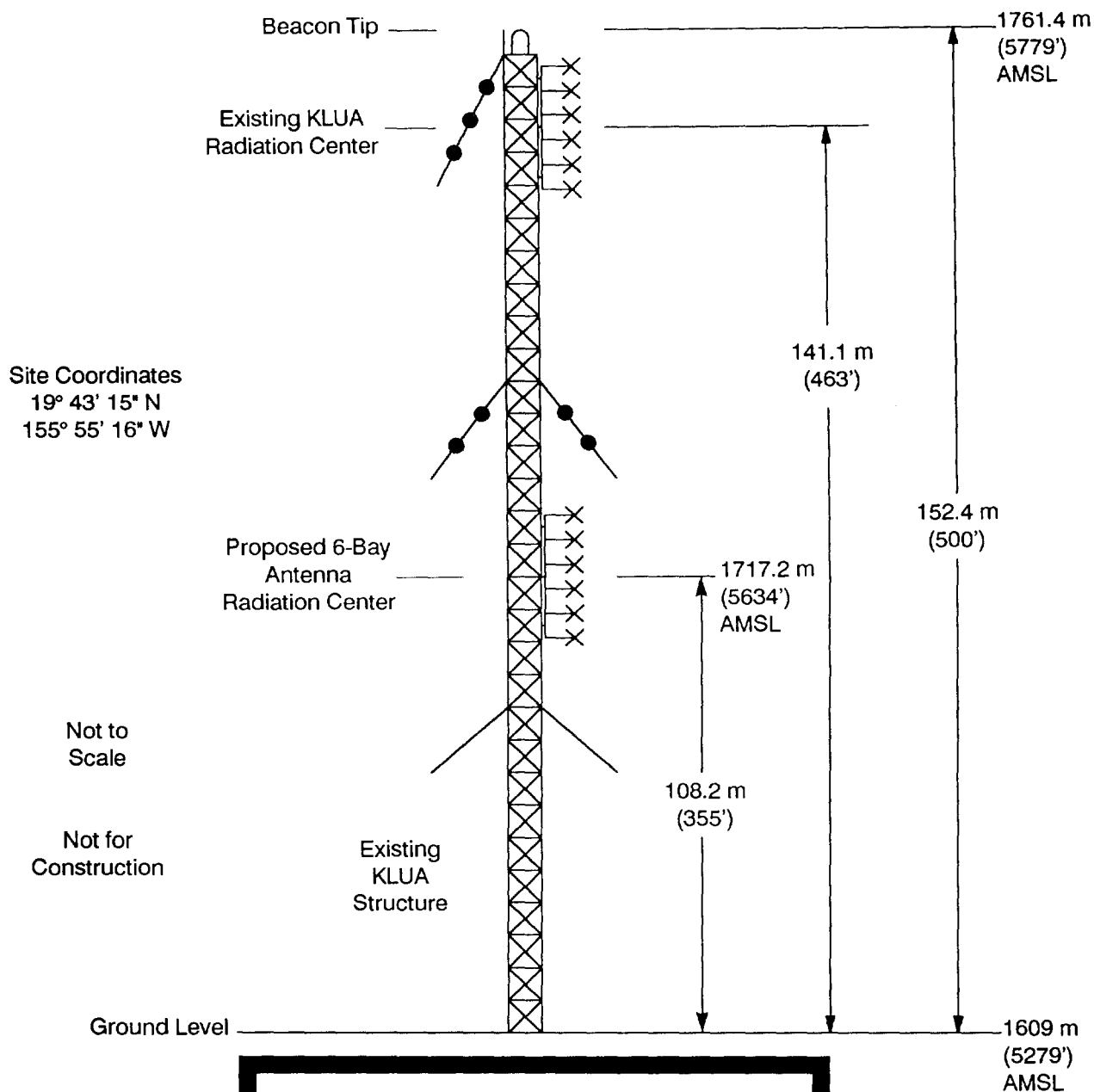


FIGURE 1
ANTENNA SYSTEM ELEVATION PLAN

prepared May 1991 for
Julie K. O'Connor
Waimea, Hawaii

Ch 256C 42 kW 860 m

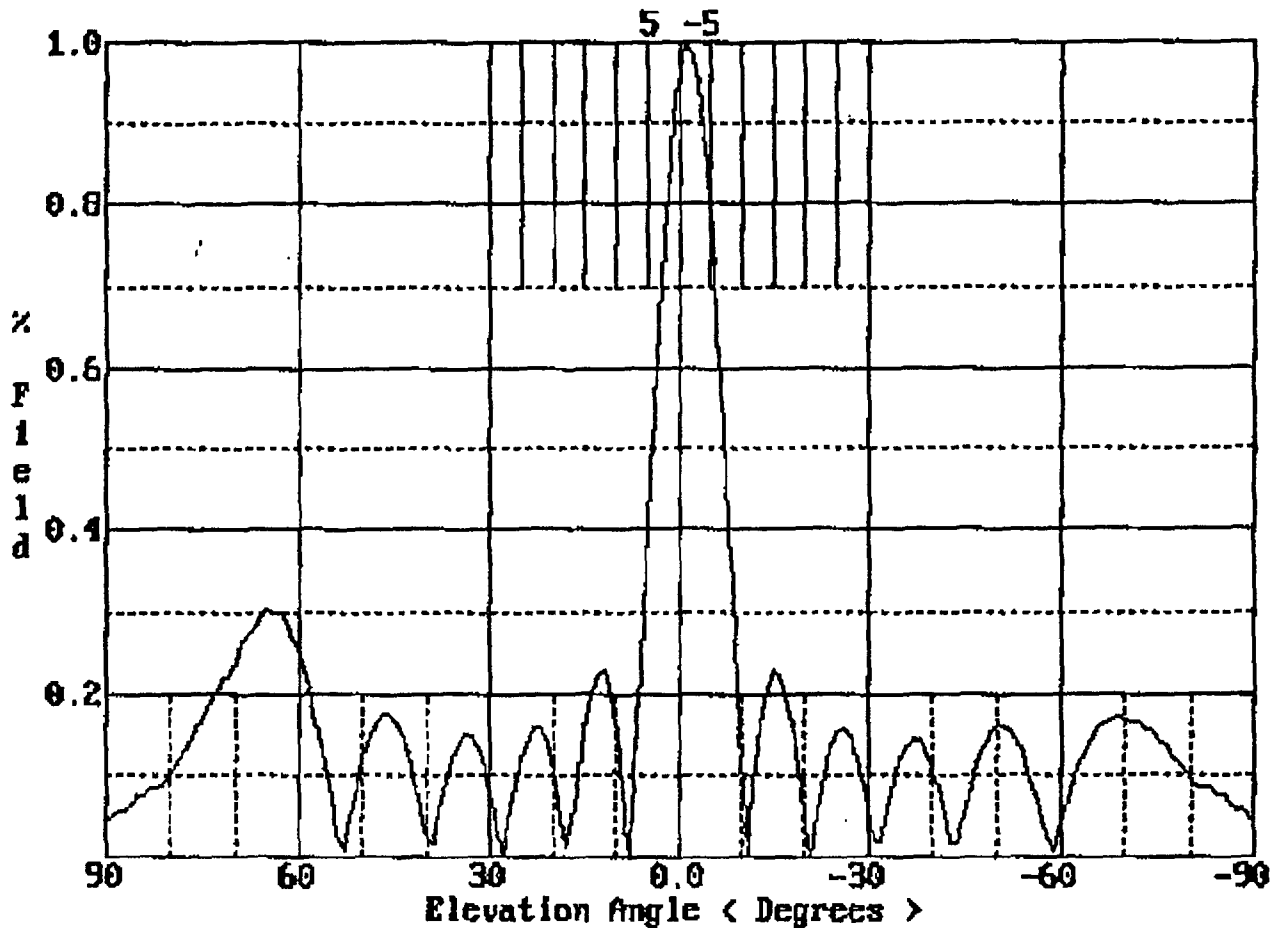
Lahm, Suffa & Cavell, Inc.
Consulting Engineers - Fairfax, VA

FIGURE 4 ANTENNA ELEVATION PATTERN

prepared May 1991 for
Julie K. O'Connor
Waimea, Hawaii



ELEVATION PATTERN



JAMPRO ANTENNAS

Customer: _____ date: _____

Frequency: 99.1 Type: 6-Bay FM

Beam tilt: -1.5 Null fill: _____

Notes: Elevation pattern plotted in relative field

Statement A

INTERFERENCE CONSIDERATIONS

prepared for
Julie K. O'Connor
Waimea, Hawaii

CH 256C (99.1 MHz) 42 kW 860 m

It is proposed to mount the channel 256C antenna on the existing tower of KLUA, Kailua-Kona, Hawaii. The proposed facility will operate with a maximum effective radiated power of 42 kilowatts at 860 meters above average terrain (AAT). FM station KLUA holds a construction permit (File No. BPH-900611IC) for operation on channel 230C from this tower. No interaction is expected between these transmitters. If such interaction occurs, the applicant will work with KLUA to install transmitter filters.

There are two other FM stations and one FM translator station within 10 kilometers of the site. There are also a full-service TV station--KVHF, channel 6, Kailua--two

Statement B

ENVIRONMENTAL CONSIDERATIONS

prepared for
Julie K. O'Connor
Waimea, Hawaii

CH 256C (99.1 MHz) 42 kW 860 m

The instant proposal is not believed to have a significant environmental impact as defined under Section 1.1306 of the Commission's Rules. Consequently, preparation of an Environmental Assessment is not required.

Nature of The Proposal

This application proposes to mount the antenna of a new station on channel 256C on the existing tower of KLUA (FM). There will be no change in the overall structure height, nor will there be any construction required at the site. Section 1.1306(b), Note 1, indicates that the use of existing towers and buildings is environmentally desirable. The proposed construction will not be in a location which falls under the provisions of Section 1.1307(a) of the Rules, and therefore may be categorically excluded from environmental processing.

Human Exposure to Radiofrequency Radiation

The proposed transmitting system will comply with the guidelines for human exposure to RF radiation contained in ANSI guideline C95.1-1982. The FCC has adopted the ANSI guideline as the maximum allowable exposure levels for humans in the vicinity of transmitting antennas.

The proposed operation has been studied using the criteria set forth in FCC OST Bulletin No. 65. Under Commission policy, a facility may be presumed to comply with FCC environmental rules if the calculated RF energy level at any point on the

Statement B (Con't)

ground does not exceed the ANSI C95.1-1982 Radio Frequency Protection Guide (ANSI RFPG).

KLUA's construction permit (File No. BPH-900611IC) authorizes operation with maximum ERP of 40 kilowatts, and with radiation center 141 meters above ground. Even under *worst case* assumptions of antenna radiation characteristics for both the KLUA and the proposed channel 256C facilities, the combined RF energy level at two meters above the ground will be less than 44 percent of the ANSI RFPG. If the actual vertical antenna patterns were to be used in the calculations, the predicted RF energy levels would be even lower. The channel 256C proposal complies with the Commission's Rules regarding human exposure to RF radiation.

The applicant will take adequate steps to protect tower workers from excessive radiation. These steps may include, but are not limited to, reducing transmitter power or turning off the transmitters while work is underway. If necessary, the applicant will supply information on those steps upon request. The applicant will coordinate all efforts with the licensee of KLUA.

Conclusion

The instant proposal is categorically excluded from environmental processing under Section 1.1306 of the Rules.

KAILUA QUADRANGLE
HAWAII-HAWAII CO
ISLAND OF HAWAII-NORTH KONA DISTRICT
7.5 MINUTE SERIES (TOPOGRAPHIC)

(PUU)

55/

370 000 FEET

155°52'30"

10945/

57°30"

Water
Tanks :

(KIHOLO)

19° 45' 00"

55°

2600

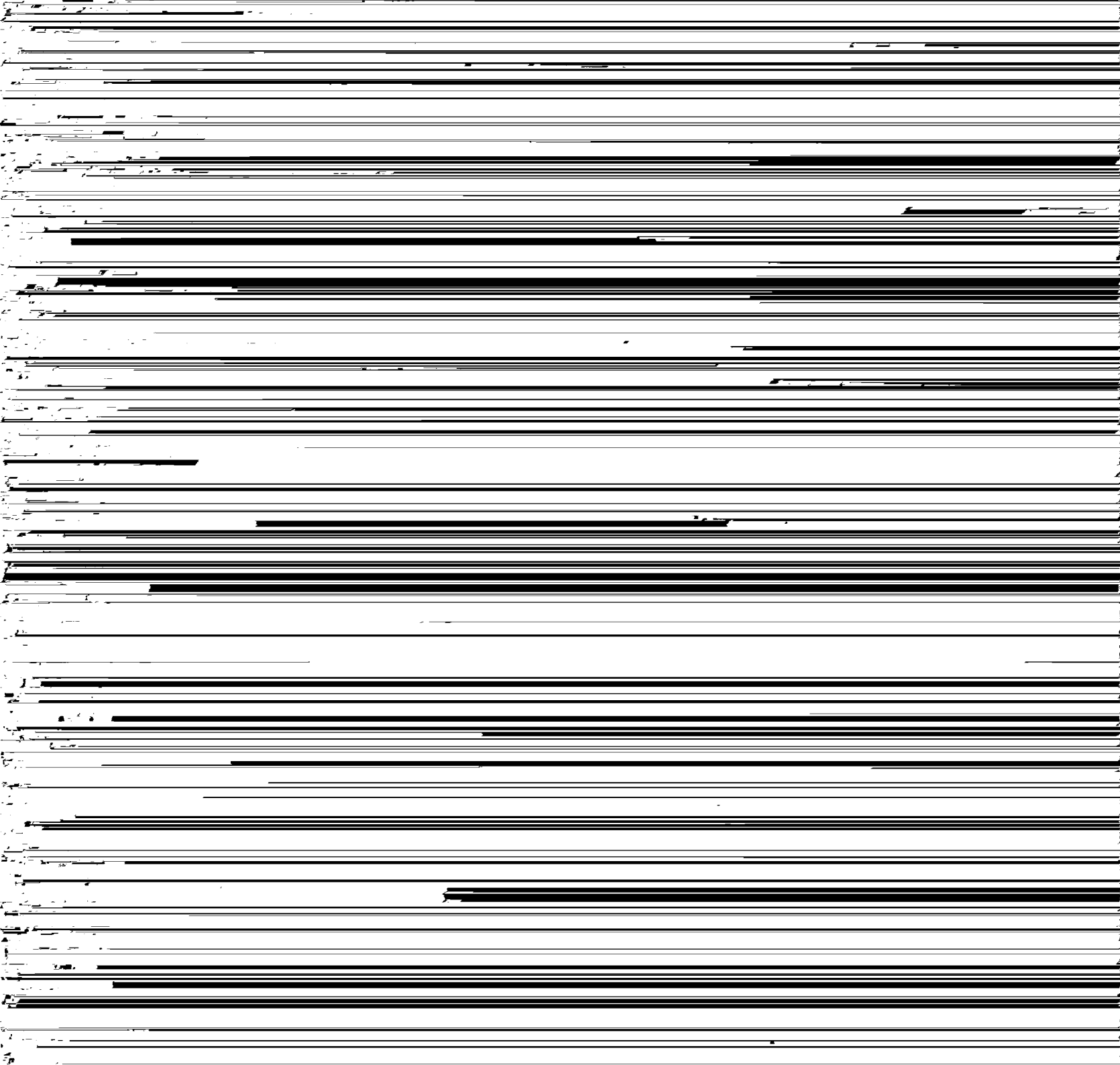
3400

3546

3600

4WD

W



Honolulu, T.H.

Keahuolu Pt

JUNCTION
NORTH MA
WATERBURY
BENNAADLA
FOR RES

MAUNA LOA

Saddle # 6632

Kaumana
(111231)
JAPAN
1952

